



UNIVERSITY OF ILLINOIS EXTENSION

College of Agricultural, Consumer, and Environmental Sciences

Illinois Fruit and Vegetable News

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a newsletter for commercial growers of fruit and vegetable crops

"We are what we repeatedly do. Excellence, then, is not an act, but a habit." Aristotle

Address any questions or comments regarding this newsletter to the individual authors listed after each article or to its editor, Rick Weinzierl, 217-333-6651, weinzier@uiuc.edu. The *Illinois Fruit and Vegetable News* is available on the web at: <http://www.ipm.uiuc.edu/ifvn/index.html>. To receive email notification of new postings of this newsletter, call or write Rick Weinzierl at the number or email address above.

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University of Illinois Extension Specialists in Fruit & Vegetable Production & Pest Management

Upcoming Programs

- **Summer Horticulture Day, June 4, registration begins at 8:00 a.m.** The program begins at Southern FS near Cobden, IL, with opportunities to tour Flamm's fruit and vegetable production and packing operations, Rosemont Farms packing enterprise, and Van Jacob Vineyard and Winery. See Elizabeth's Wahle's comments below or the [flyer and registration form](#).

Another Information Source for Small Farmers

The New Agriculture Network provides information for small farmers and organic farmers. A new issue was posted this week at <http://www.new-ag.msu.edu/>, and it includes articles on financing farm expansion, managing Septoria leaf spot and early blight of tomato, vacuuming pests with a leaf blower, an organic field day at Lamberton, MN, a report on organic agriculture in Michigan, and reports from organic growers. There's also an article from John Masiunas on managing weed seed banks in organic crops (at <http://www.new-ag.msu.edu/issues07/5-23.htm#3>). In Illinois, for more information on the New Agriculture Network (a joint effort of the University of Illinois, Purdue University, Michigan State University, and organic growers), contact Deborah Cavanaugh-Grant at cvnghgm@uiuc.edu or 217-968-5512.

Regional Updates

In southern and southwestern Illinois, asparagus harvest is coming to an end, and growers need to be thinking about and preparing for the herbicide application following the final harvest. This is a critical point in terms of weed control before allowing the plants to go to fern. Full weed control options are available in the 2007 Midwest Vegetable Production Guide for Commercial Growers or online at <http://www.btny.purdue.edu/Pubs/ID/ID-56/>.

A "blackberry winter" in southern Illinois ... I learned from those *in the know* that it is common for a cold front to coincide with blackberry bloom, resulting in the phrase "blackberry winter." Bramble plants are looking better and better, and the bloom on

blackberries is coming on full. Like in strawberry growers, bramble growers need to be diligent in scouting for thrips. Injury to bramble flowers by thrips can result in dried hardened drupes. A hand lens is useful in scouting for these tiny insects. If you don't have a hand lens, you can shake a few flowers in a white cup covered with plastic wrap. The thrips will fall off the flower and show up against the white background.

I was out and about today and had an opportunity to compare six varieties of matted row production strawberries side by side: Jewel, L'amour, Brunswick, Darselect, Itasca, and Earliglow. Earliglow is still outshining the others in terms of flavor, but as most growers know, size is not what Earliglow is known for. The other varieties exhibited good size and color development, both inside and out. The only major flaw I have to report is with Itasca. It decaps and is very difficult to harvest with the cap intact. Even with effort to do otherwise, almost half of what I picked was either partially or fully decapped.

Grape growers are back in the vineyard thinning shoots and clusters of secondary and tertiary growth that followed the loss of primary tissues to early April's freeze. Some varieties are in full bloom already, which is a welcome site after seeing all the freeze damage to the primary growth. New growth on most grapes is fairly tender and easy to break off, and several growers have reported strong enough wind gusts to snap off shoots.



Tom Schwartz scouting for thrips in blackberries.

Fire Blight is an issue in a lot of apple orchards this season, and many growers are reporting full spray programs of Apogee and streptomycin to maintain some level of control. There are not many Jonagold, Red Delicious, Braeburn, or Fuji apples this year, but at least some southern Illinois orchards will produce other varieties, including Winesap, Jonathon, Golden Delicious, and Ozark Gold. There is a peach crop in some orchards in the northwestern portion of the region as well. The better crops (60-100%) will be found in Encore, Jayhaven, Newhaven, and Contender. There is a lesser crop (10-30%) in several other varieties including Redhaven, Cresthaven, Lorel, Risingstar, Starfire, Redstar, Allstar, Glowhaven, and Summer Pearl. Many peach growers have taken advantage of the freeze situation to bring tree height down while there is no crop. Where limbs were removed early enough in the season (by early May), new wood will be produced that is fruitful for next season.

Ticks are bad this year, and reports of rashes characteristic of Lyme disease have already been reported. Normally I can make it through a season collecting only one or two, but so far this year I'm well into the double digits. Although at least 15 species of ticks occur in Illinois, only a few of these ticks are likely to be encountered by people: American dog tick, lone star tick, blacklegged (deer) tick (Lyme disease concern), brown dog tick, and winter tick. The Illinois Department of Public Health has a nice website that discusses Lyme disease and how to avoid tick bites: <http://www.idph.state.il.us/public/hb/hblyme.htm>.

There was a recent update to the Illinois Department of Agriculture's "Pesticides: Use and Misuse" website. They now have the pesticide incident complaint form available online at: <http://www.agr.state.il.us/Environment/Pesticide/pestuses.html>. If you suspect pesticide misuse and need to file a complaint, you have 30 days from the time you notice injury to file a complaint form with IDoA. If you don't have web access, you can still call 1-800-641-3934 (voice and TDD) or 217-785-2427 for a complaint form. Once IDoA receives the complaint form from you, an inspector will be assigned to your case.

The Summer Horticulture Field Day which is sponsored by the Illinois State Horticulture Society is scheduled for Thursday, June 14, in southern Illinois. Parking and registration will be at the Southern FS facility at Cobden, located at 200 Jamestown Road and will

begin at 8:00am. From there, participants will walk across the road to tour Flamm’s Orchard. Later in the morning, we will tour Rosemont Farms’ packing operation. Following lunch, participants will have an opportunity to visit Von Jacob Winery. Pre-registration donation is \$20 per person or \$25 at the door. Advance reservations are appreciated. Please pre-register by June 11. Children are free.

Directions to Southern FS: South of Carbondale, take old State Route 51 to Cobden, turn right (west) onto Jamestown Road. For more information on hotels and general information, contact Don H. Naylor, ISHS Executive Secretary at 309/828-8929 or email: ilsthortsoc@yahoo.com . For those who receive this newsletter in print via US Mail, a copy of the registration form is attached. For web readers, [click here](#).

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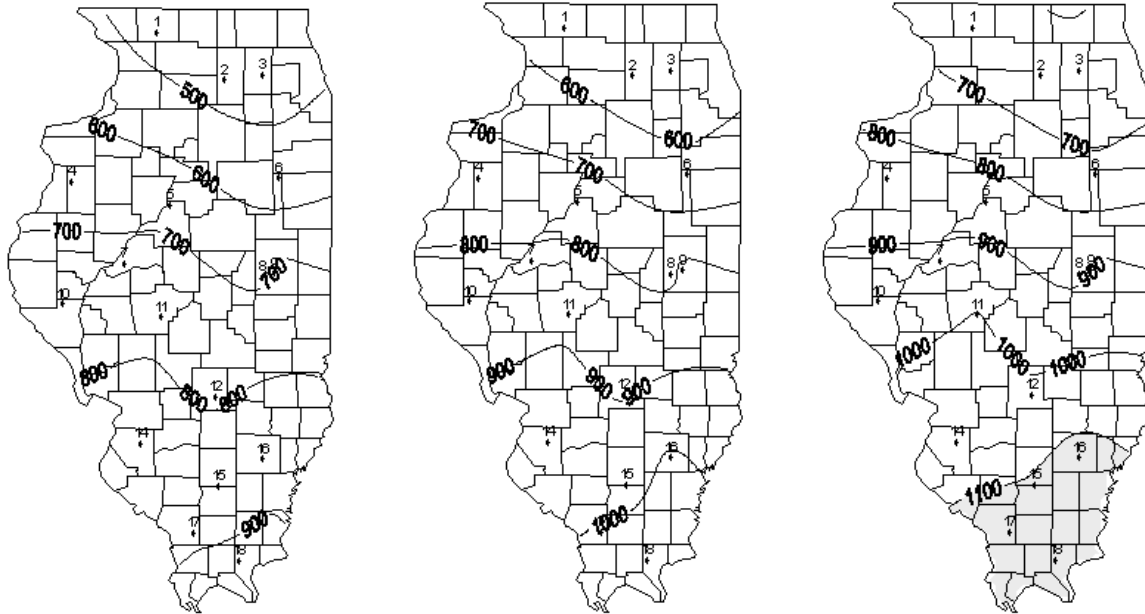
Degree-day Accumulations

Degree-day accumulations listed below for weather stations in the Illinois State Water Survey WARM data base have been summarized using the Degree-Day Calculator on the University of Illinois IPM site (<http://www.ipm.uiuc.edu/degreedays/index.html>). The list below includes only degree-day accumulations and projections based on a 50-degree F developmental threshold and a January 1 starting date, but other options that use different thresholds and specific biofix dates are available on the Degree-Day Calculator. The degree-day calculator is available as a result of a joint effort of current and former extension entomologists (primarily Kelly Cook) and Bob Scott of the Illinois State Water Survey. If you have questions about how to use the site, contact me or Bob Scott (rwscott1@uiuc.edu).

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Degree-day accumulations, base 50 degrees F, starting January 1.

Station	County	Base 50F DD Jan 1 – May 22, Historic Average	Base 50F DD Jan 1 – May 22, 2007	Base 50F DD Jan 1 – May 29 (Projected)	Base 50F DD Jan 1 – June 5 (Projected)
1. Freeport	Stephenson	441	464	540	627
2. Dekalb	Dekalb	487	461	544	636
3. St. Charles	Kane	443	463	534	614
4. Monmouth	Warren	547	662	747	844
5. Peoria	Peoria	587	677	763	862
6. Stelle	Ford	533	538	625	723
7. Kilbourne	Mason	685	723	814	917
8. Bondville	Champaign	615	677	768	871
9. Champaign	Champaign	613	734	827	933
10. Perry	Pike	647	750	841	944
11. Springfield	Sangamon	661	788	891	1004
12. Brownstown	Fayette	739	782	890	1008
14. Belleville	St. Claire	802	840	951	1072
15. Rend Lake	Jefferson	847	860	978	1107
16. Fairfield	Wayne	803	894	1011	1140
17. Carbondale	Jackson	832	894	1005	1129
18. Dixon Springs	Pope	876	909	1025	1153



Degree-day accumulations, base 50 F, January 1 – May 22, 2007 (left), and projected through May 29 (center) and June 5 (right).

Notes from Chris Doll

Once again, it is difficult to compare the phenology calendar with other years since little or no fruit is on the trees. However, grape bloom and shoot tipping of black raspberries are occurring at almost identical dates as 2006. Degree-days can be compared from Dr. Weinzierl's chart. I am at 516 DD for a codling moth biofix of April 29. Trap counts for the past week were 5 codling moths and 6 oriental fruit moths.

Peach trees have finally developed normal green color and vegetative growth is taking off. Freeze-injured apple leaves and shoots have grown out of the April injury, only to be replaced by lots of fireblighted shoots. This has happened in some commercial orchards as well as the Back 40. I tried to break and cut out infected shoots for a couple of days, and when the count reached 750 for two days work, I decided that even a retiree should have something better to do with his time. In a hobby orchard like mine, it is tough to see young trees of new varieties or new grafts killed back. I also know how disturbing it is to see it run in commercial orchards. In the past week, I have seen where three Apogee sprays of eight ounces each gave some control and also some breakdown in another orchard. Well timed strep sprays also show reduced infections, with good control on Jons and significant problems on adjoining Reds and Goldens. In the Back-40, major infections show on Jons, Jonagold, Gala, Senshu, Orin, Lodi, and some on Honeycrisp.

Blackberries have recovered to full crop status for some growers, and others should have 25-50 percent of a crop. The raspberries are looking better, but the freeze-damaged canes and leaves may result in smaller fruits. The new canes on both black raspberries and blackberries have reached tipping heights, and this usually requires 2-3 trips through the planting at 5-7 day intervals.

Newly planted trees are growing and it is time, or nearly so, to clothespin or toothpick selected shoots for scaffolds on trees that were cut back to force shoots from the trunk. Feathered apple and peach trees can have the desired scaffolds spread out by the use of weights, spreaders, or rubber bands to tie them down.

Climbing milkweed vines are up and reaching for the tree's lowers shoots. It is my observation that one spray of any of the registered contact herbicides will not give season-long control. Repeated sprays of glyphosate, amine 2,4-D, and maybe Rely will do a better job. Sterilant-type herbicides can be added to the contact products if needed later in the season.

I drove through a newly planted orchard and also a second leaf block last week. Travel speeds of more than 4-5 mph caused a very rough ride. My concept is that peach growers might drive through the orchard at least 20 times a year, and apple growers will have about 25 to cover more sprays and a longer season. If time equals money, multiply these figures by the number of years in the life of the orchard when considering the cost of leveling.

Chris Doll

Fruit Production and Pest Management

Codling Moth Phenology

Biofix observations in the table below were provided by Echo Valley Orchard near Murphysboro, Eckert's at Belleville, Chris Doll's backyard orchard at Edwardsville, Hagen's Orchard near Brussels (southern Calhoun County), the University of Illinois orchard at Urbana, Tanner's Orchard near Speer, and Royal Oak Orchard north of Harvard. Note that I've used Belleville weather station data for degree-day calculations for Edwardsville (instead of using Brownstown data as I have in the past). Degree-day accumulations since January 1 are slightly higher at most Illinois locations (see the table and maps above), and for apple growers, it's important to note that a lot of warmer-than-average temperatures have occurred since biofix dates for codling moth. Degree-days have been accumulating faster than average over the last few weeks, so codling moth development (as well as the development of other insects) is running ahead of average as well.

Orchard Location	Weather Station	CM Biofix Date	DD ₅₀ through May 22, 2007	DD ₅₀ projected through May 29, 2007	DD ₅₀ projected through June 5, 2007
Murphysboro	Carbondale	18 April	566	679	805
Belleville	Belleville	23 April	513	625	748
Edwardsville	Belleville	29 April	423	535	658
Brussels	Brownstown	27 April	411	520	641
Urbana	Champaign	30 April	380	474	582
Speer	Peoria	07 May	267	354	456
Harvard	Freeport	10 May	168	245	334

Developmental events for the codling moth based on degree-day accumulations are presented below. Remember that **“biofix”** refers to the date of the first sustained capture of first-generation moths in traps.

Codling moth development:

First egg hatch (for first generation larvae)	~220 DD ₅₀ after biofix
50 percent of first generation moths emerged	~240 DD ₅₀ after biofix
50 percent of first generation eggs hatched	~500 DD ₅₀ after biofix
99 percent of first generation eggs hatched	~920 DD ₅₀ after biofix
First moths of second generation emerge	~900 DD ₅₀ after biofix

(Table based on *Orchard Pest Management* by Beers et al., published by Good Fruit Grower, Yakima, WA.)

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Botrytis Fruit Rot of Strawberry

Botrytis fruit rot (gray mold), caused by *Botrytis cinerea*, is a serious disease of strawberries in Illinois. Under favorable environmental conditions for disease development, serious yield losses can occur. This year, Botrytis fruit rot has been observed in most strawberry patches in the state. The fungus can infect petals, flower stalks (pedicels), fruit caps, and fruit. Young blossom are very susceptible to infection. Infected blossoms show blasting (browning and dying) symptoms. Fruit infections usually appear as soft, light brown, rapidly enlarging areas on the fruit. Fruit infection is most severe in well-protected, shaded areas of the plant where the humidity is higher and air movement is reduced. The symptoms are more common in mature fruit. Disease development is favored by wet conditions accompanied by temperatures between 41 and 86°F.

For control of Botrytis, the planting site should have good soil drainage and air circulation, and plants should be exposed to direct sunlight. A good layer of straw mulch (or similar mulch) between rows or around the plants aids in reducing fruit rot. Proper spacing of plants and effective weed control also reduce blossom and fruit infection. Excessive use of nitrogen fertilizer creates favorable conditions for disease development. Harvested berries must be handled with care to avoid bruising and should be refrigerated at 32 to 50°F. Fungicides are usually used in management of Botrytis rot in commercial plantings. Fungicide application is more effective, if spray applications are made timely and used in conjunction with the cultural practices. Several fungicides, such as Captan, CaptEvate, Elevate, Pristine, Scala, Switch, and Topsin-M, are effective against *Botrytis cinerea*. For more information on control of Botrytis rot of strawberry, refer to the “Midwest Commercial Small Fruit and Grape Spray Guide – 2007,”

<http://www.hort.purdue.edu/hort/ext/sfg/default.html>.



Botrytis Fruit Rot of Strawberry



Botrytis Fruit Rot of Strawberry

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Vegetable Production and Pest Management

Herbicide Label Updates

Prowl H₂O Labeled for Tomatoes, Peppers, and Nonbearing Strawberries: Prowl H₂O, a water soluble form of pendimethalin herbicide, was recently registered for use on tomatoes, peppers, and nonbearing strawberries. Prowl H₂O can be broadcast applied at 1.0 to 3.0 pints/acre, depending on soil texture, before transplanting tomatoes and peppers. Prowl H₂O can also be applied as a post-directed spray on the soil between rows of established plants. Do not contact foliage or stems of tomatoes or peppers because severe injury may occur. Rainfall or irrigation is needed to activate Prowl H₂O. Do not use Prowl H₂O under plastic mulch. Also Prowl H₂O cannot be applied within 70 days of harvest.

Prowl H₂O can be applied to strawberries at 1.5 to 3.0 pints/acre, depending on soil type. Prowl H₂O should be applied pretransplant as a broadcast treatment to the soil surface. A second application of Prowl H₂O may be made in a band to the soil between strawberry rows up to 35 days before harvest. Stunting, reduced growth, or a reduction in daughter plants may occur from the use of Prowl H₂O on strawberries. Evaluate Prowl H₂O on a small portion of a planting before using over your whole strawberry field.

When should I use Prowl H₂O? In strawberries, Prowl H₂O may replace Dacthal as the primary herbicide used at planting. Prowl H₂O has more consistent grass activity and better barnyardgrass, pigweed, and waterhemp control than Dacthal. Prowl also is about one-tenth the cost of Dacthal. The only limitation I see with Prowl H₂O is the potential for strawberry injury.

In tomatoes and peppers, the advantages of Prowl are less clear-cut. Prowl H₂O and Treflan (trifluralin) provide similar weed control but Prowl H₂O does not need to be incorporated. The prices for Prowl and Treflan should be comparable.

Dual Magnum Receives Label for Pumpkins: Dual Magnum (s-metolachlor) received a section 24c, Special Local Need, label for use on processing and jack-o-lantern pumpkins in Illinois. Syngenta requires users to register at their website <http://farmassist.com> before obtaining the label. This registration indicates the user/grower agrees to release Syngenta from all liability caused by Dual Magnum failing to provide weed control and/or causing crop injury, loss, and yield reduction. At their website, select “Product” then “Special Labels” then “Indemnified Labels.” You must have the label in your possession at the time of application.

What are some highlights of the Dual Magnum label? Dual Magnum should be broadcast-applied at a rate of 1.0 to 1.33 pints/ acre (0.95 to 1.27 lb a.i./ acre) after seeding pumpkins but before weeds and the crop have emerged. Do not apply Dual Magnum after emergence of pumpkins.

When should I use Dual Magnum? Dual Magnum will provide control of waterhemp, pigweed, galinsoga, nightshade, and carpetweed. It can be an important addition to pumpkin weed management to avoid ALS-resistant (Sanea) waterhemp. Dual Magnum also can be used if your field has primarily grasses, such as barnyardgrass, crabgrass, and foxtails. Strategy is a better choice for a preemergence grass herbicide if your field is dominated by common purslane or velvetleaf. In our field studies, postemergent applications of Sanea after Dual Magnum had good crop safety and improved control of yellow nutsedge, cocklebur, and ragweed.

Sinbar Registered for Annual Broadleaf Control in Watermelon: Dupont’s Sinbar (terbacil) herbicide is a new addition to the weed management arsenal for watermelon. Sinbar is especially effective for control of annual morningglory and nightshade. Morningglories may emerge but the leaves will brown and plants die. Sinbar when combined with Curbit (ethalfluralin) or Strategy (clomazone + ethalfluralin) will improve pigweed and waterhemp control and reduce the potential for development of ALS-resistant (Sanda) waterhemp and pigweed.

Sinbar should be applied after seeding watermelon but before emergence or before transplanting watermelon. The herbicide should be applied at 2 to 4 ounces of product per acre. Sinbar can be applied preemergence under plastic mulch. Do not apply Sinbar over the top of emerged watermelon plants or within 70 days of harvest.

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“New” Problem Weeds in Vegetables

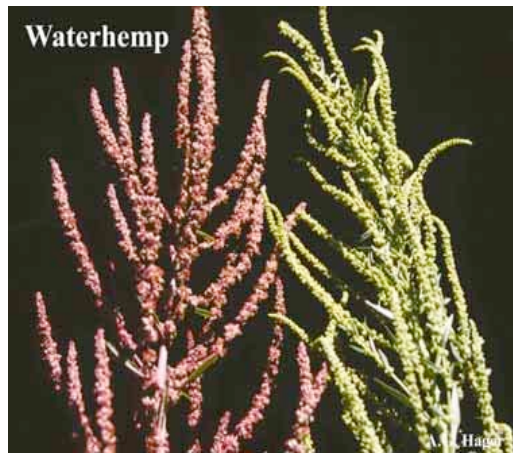
Weed communities are constantly changing in response to our management practices. I want to highlight weeds that are becoming more problematic in vegetables. Giant ragweed has “learned new tricks,” extending its emergence into midsummer when preemergence herbicides are no longer effective. Giant ragweed is replacing common ragweed as the dominant *Ambrosia* species in many northern Illinois vegetable fields. The traditional redroot and smooth pigweeds of vegetable farms are being replaced by tall and common waterhemp. Waterhemp are extremely variable, often herbicide resistant, and late emerging.



Giant ragweed (*Ambrosia trifida*) is an old weed reappearing as a “new” problem weed. Giant ragweed produces large amounts of pollen in late summer or fall and is the major cause of hay fever. It is a noxious weed in Illinois, meaning giant ragweed must be controlled by landowners. Giant ragweed is an erect, tall (up to 12 to 15 feet) plant with large distinctive three-lobed leaves. The cotyledons of giant ragweed seedlings are round to oblong, and thick. Mature leaves are opposite, serrated with 3 to 5 deep lobes, with a rough surface on the leaves and stems. The plant has a preference to full sun, moist conditions, and fertile loamy soils. Giant ragweed often is one of the first weeds to emerge in the spring but recently has an extended emergence period through July. The extended emergence period reduces the effectiveness of tillage and preemergent herbicides to control giant ragweed. Giant ragweed biotypes have developed resistance to ALS-inhibitor (Sanda, Accent) and triazine (Aatrex) groups of herbicides. Stem-boring insects, common to giant ragweed, interfere with translocation of postemergence herbicides.

Control. The first management step is to prevent the introduction of giant ragweed seeds. Before planting vegetables, use primary tillage to eliminate any emerged giant ragweed. Between row cultivation and hand-hoeing can eliminate small, emerged giant ragweed plants. In sweet corn, control programs should start with soil-applied atrazine followed by postemergence applications of a growth regulator herbicide (2,4-D, Clarity, Stringer, or Distinct). Other herbicides that will control giant ragweed in vegetables include Chateau, Goal, Karmex, Sencor (used preemergence) Sandea, and Reflex.





Waterhemp (common waterhemp, *Amaranthus rudis*, and tall waterhemp, *Amaranthus tuberculatus*) exploded as a problem in corn and soybeans during the 1990s and during the past decade have replaced redroot pigweed as the major amaranth species in vegetable crops. I expect waterhemp to increase as a problem as hand-weeding and tillage are reduced and with the increased use of ALS-inhibiting herbicides such as Sandea, Matrix, and Accent. The two waterhemp species (common and tall waterhemp) are pigweed relatives with highly variable plant shapes. Waterhemp has long and slender leaves with stems and leaves smooth and hairless, giving the plant a glossy appearance. The hairless stems and leaves differentiate waterhemp from redroot pigweed (has hairs). Waterhemp can germinate over a wide range of environmental conditions late into the summer. In central Illinois, peak emergence of waterhemp is in July. The prolonged emergence prevents control by preemergence herbicides or early season tillage. Waterhemp has separate male and female plants, meaning it must outcross. This results in very diverse waterhemp species that have numerous biotypes suitable for range of environments. The diversity of waterhemp also means the two species have developed herbicide resistant biotypes. In Illinois, waterhemp has developed resistance to ALS-inhibitor herbicides (Sandea, Accent) and triazine herbicides (Aatrex). Most waterhemp populations in Illinois are susceptible to PRE applied triazines but resistant to POST applied triazines. In Kansas, waterhemp biotypes also have developed resistance to PPO-inhibiting herbicides (Goal, Spartan, and Reflex).

Control. Waterhemp emerges over an extended period of time, making it necessary to use multiple tactics to provide season-long control of waterhemp in vegetable crops. The goal of any waterhemp management program is to avoid seed production and to minimize competition with crops. Management practices are crop dependent but should aim to maximize crop competitiveness and ensure rapid canopy closure. Narrow row spacing or high plant populations can be helpful in maximizing crop competitiveness. In sweet corn, preemergent applications of atrazine, Harness, Micro-Tech, and Dual Magnum all provide good early season control of waterhemp. Preemergent herbicides should be followed by late season tillage or postemergence applications of 2,4-D or Clarity. In broadleaf vegetables, preemergent applications of Spartan, Outlook, Dual Magnum, and Sencor will provide early season waterhemp control. Late season tillage or postemergence applications of Reflex or Sandea will control waterhemp. Waterhemp resistance to ALS-inhibitors such as Sandea is becoming common. Jed Colquhoun at the University of Wisconsin has prepared a publication,

“Herbicide Resistance Management in Vegetable Rotations” (A3822) available at <http://learningstore.uwex.edu/pdf/A3822.PDF>, which can help you avoid problems with herbicide resistance.

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Words of Wisdom ...

With every passing hour our solar system comes 43,000 miles closer to globular cluster 13 in the constellation Hercules, and still there are some misfits who continue to insist that there is no such thing as progress. *Ransom K. Ferm*

A wealthy Texas rancher driving through Norway in a rental car sees a man with a horse and plow. The Texan stops, rolls down the window and calls, "Are you a farmer?" "Yah," the Norskie replies. "Where is your farm?" the Texan asks. "From vher I'm standing--down tew dat tree over dere." "Do you call that a farm?" the Texan rejoins, "Why where I come from, I've got a farm so big it takes me a whole day to drive from one end of it to the other!" "Yah," the Norskie returns. "Aye yoost to hev a car like dat tew!" *Vern Hansen, Campbell, California*

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